

REMARKS

In order to expedite prosecution, claim 1 has been amended to call for a gypsum board having a first facer of a fibrous mat comprising a non-woven web comprising a blend of a major portion of glass fibers having an average fiber diameter of $11 \pm 1.5 \mu\text{m}$, a feature formerly recited by claim 6, which depended from claim 1. Claims 4 and 6 have been cancelled. Claim 29 directed to an improved gypsum board, claims 31 and 32 reciting a fibrous mat, and claim 33 directed to a hydraulic set board have been similarly amended to call for a major portion of glass fibers having an average fiber diameter of $11 \pm 1.5 \mu\text{m}$.

Applicant's invention, as recited by presently pending claims 1-3, 5, 7, 9, 11-23, 25-29, and 31-33, as amended, provides a nonwoven, fibrous mat comprising a blend of a major portion composed of chopped glass fibers having an average fiber diameter of about $11 \pm 1.5 \mu\text{m}$ and a minor portion composed of fine staple fibers having an average fiber diameter of less than about $5.5 \mu\text{m}$. The minor portion is composed of glass or mineral fibers and comprises about 1-30 percent of the dry weight of the web. Also provided is a gypsum board faced with such a mat. In various embodiments, the gypsum board exhibits a combination of desirable structural and functional features that render it fire resistant and easily painted or otherwise given an aesthetically pleasing finish after installation with a minimum of surface preparation required. The mat has a high permeability, permitting easy extraction of excess water ordinarily present during slurry-based manufacture of gypsum or other hydraulic set

board. Surprisingly and unexpectedly, gypsum board faced in accordance with the invention with the present nonwoven glass fiber mat, has a smoother surface than boards made with known mats employing fibers having either larger or smaller average diameter. It is especially surprising and significant that the aforementioned fiber blend results in smoother board than would otherwise be obtained in prior art mats made with fibers having a single average diameter.

Claim 30 stands withdrawn as being directed to a non-elected invention.

Claims 1-7, 9, 12-15, 17-18, 29, and 33 stand rejected under 35 USC 103(a) as being unpatentable over US Patent 5,389,716 to Graves, which discloses a binder composition for fibrous mats that is said to be fire resistant when cured. The mats are said to be suitable for a backing layer for gypsum. Inasmuch as claims 4 and 6 have been cancelled in the present amendment, this rejection will be discussed with respect to remaining claims 1-3, 5, 7, 9, 12-15, 17-18, 29, and 33.

The Examiner has pointed to disclosure of fibrous mat comprising a mixture of glass and mineral wool fibers (col. 3, lines 44-50). The mineral wool fibers are said to have a diameter between 2 and 6 microns (col. 9, lines 50-60) that may be in part substituted with glass fibers (col. 11, lines 33-37). As noted by the Examiner, Graves discloses (at col. 11, lines 54-60) that the weight ratio of wool to glass fibers may range from about 0:1 to 1:0.

That is to say, the Graves mat may comprise exclusively glass fibers or mineral wool, or a combination in any ratio.

Significantly, the Examiner has not pointed to disclosure in Graves of any range even approximating 1-30%, let alone any mat species having fiber sizes and amounts falling within the limits set forth by applicant's independent claims 1, 29, and 31-33, or even any disclosure or suggestion of the desirability of a mat containing 1-30 percent mineral wool fibers.

Far from recognizing any benefit attending the use of the particular size glass fibers in the combination recited by applicant, Graves states that "The glass fibers useful in the present invention are any conventional glass fibers" (col. 9, lines 58-59, emphasis added). Significantly, Graves' preferred and more preferred ranges for ratio of wool fibers to glass fibers (1:1 to 9:1 and 7:3 to 9:1, respectively – see col. 11, lines 58-59) require at least half (1:1) and more preferably a substantial preponderance of the smaller wool fibers (i.e. 70-90%), whereas applicant calls for a "minor portion" of the smaller staple fibers. Applicant respectfully notes that the six species set forth in Table 1 of Graves accord with his express preference, employing a wool fiber to glass fiber ratio of 90/10 or 80/20, said amounts of wool fiber (80-90%) being far larger than the 1-30 percent delineated by claims 1, 29, and 33.

Clearly, Graves does not expressly recite any of applicant's numerical ranges, instead teaching ranges that are far broader with respect to each of these indicia. The 1-30% range does not appear whatsoever in Graves. Neither does the Examiner provide any objective

basis on which it could be concluded that species within the range delineated by Graves but outside applicant's claimed ranges would inherently share the beneficial properties of applicant's mat and board. Nothing in Graves or in other art cited by the Examiner establishes that a person having ordinary skill in the art would particularly select 1-30% of fine staple fibers. Whereas applicant's mat must contain a blend of fibers of different average diameters, the Graves mat can contain exclusively fibers of one of the types, or any intermediate blend in any proportion.

Thus, applicant respectfully maintains that the disclosure of Graves differs strikingly from the subject matter recited by applicant's claims 1, 29, and 31-33, as set forth in the Table below:

Claim Feature	Instant Application	Graves
chopped glass fiber (average diameter)	$11 \pm 1.5 \mu\text{m}$	3-30 μm
fine staple fiber (average diameter)	$< 5.5 \mu\text{m}$	2-6 μm
proportion of fine staple fibers	1-30%	0-100%

The Examiner has pointed to Graves' disclosure (col. 12, lines 14-21) that "Longer fibers and fibers having a large diameter will tend to produce a finished mat with a coarser hand. Conversely, shorter, smaller diameter fibers contribute to a mat having a relatively softer hand. Thus, both the ratio of mineral wool fibers to glass fibers, and the dimensions of each of the fibers selected will affect the functional properties of the finished mat."

Applicant respectfully submits that this disclosure creates at best an "obvious to try" situation, which the courts have repeatedly recognized to be an insufficient predicate of obviousness under 35 USC 103(a).

The Federal Circuit's predecessor court clearly recognized the impediment posed by an "obvious to try" standard:

"...application of the "obvious to try" test would often deny patent protection to inventions growing out of well-planned research which is, of course, guided into those areas in which success is deemed most likely. These are, perhaps, the obvious areas to try. But resulting inventions are not necessarily obvious. Serendipity is not a prerequisite to patentability. Our view is that "obvious to try" is not a sufficiently discriminatory test." *In re Lindell*, 385 F.2d 453, 155 USPQ 521, 523 (C.C.P.A. 1967).

The nature of an "obvious to try situation" has been elucidated by the Board of Patent Appeals and Interferences: "In *Deuel*, . . . the court emphasizes that 'obvious to try' is not the standard under 35 USC 103. As stated in *In re Eli Lilly and Co.*, 'An "obvious-to-try" situation exists when a general disclosure may pique the scientist's curiosity, such that further investigation might be done as a result of the disclosure, but the disclosure itself does not contain a sufficient teaching of how to obtain the desired result, or that the claimed result would be obtained if certain directions were pursued.'" *Ex parte Goldgaber*, 41 USPQ 2d 1172, 1177 (B.P.A.I. 1996) (quoting *In re Eli Lilly and Co.*, 14 USPQ 2d 1741, 1743 (Fed. Cir. 1990) and *In re Deuel*, 51 F.3d 1552, 34 USPQ2d 1210, 1216 (Fed. Cir. 1995)). This position has been reaffirmed in *Ecolchem, Inc. v. Southern Cal. Edison Co.*, 56 USPQ 2d 1065, 1075 (Fed. Cir. 2000).

In the present instance, applicant has discovered that the aforementioned suggestion of Graves is not born out at a reliable prediction of smoothness. Submitted herewith is a Declaration under 37 CFR 1.132 by the Alan M. Jaffee, the inventor of the present subject matter. In that Declaration, smoothness data for gypsum boards made with non-woven glass fiber mat facers having various average fiber diameters is provided. Those data establish that gypsum boards made with mat composed of 11 μm glass fibers are surprisingly and unexpectedly smoother than boards made with mats wherein the glass fiber diameter is either larger or smaller than 11 μm . It is respectfully submitted that these data establish that, in fact, the general trend alleged by Graves is not reliable. In particular, the Declaration establishes that decreasing the fiber diameter, even within the 3 to 30 μm limit recited by Graves, does not necessarily result in a smoother mat. Significantly, the Declaration establishes that gypsum board produced with a glass fiber mat comprising glass fiber with an average fiber diameter of 11 μm and an average length of 12 mm was surprisingly and unexpectedly smoother than mats comprising fiber with the next larger or smaller average fiber diameter tested, i.e. 8 or 13 μm . Applicant thus maintains that a skilled artisan would, in light of Graves, be misled to think that smoothness could be improved by use of a chopped glass fiber diameter smaller than those in the Graves examples, and further improved by using fibers smaller than the $11 \pm 1.5 \mu\text{m}$ required by claim 1.

Further evidence of the unexpectedness of applicant's findings is adduced in the specification. For example, nothing in Graves discloses or suggests a gypsum board having

a surface that is aesthetically acceptable when finished by painting. See, e.g., page 6, lines 20-22. Even if, *arguendo*, one were to assume that a smoother raw surface improves the aesthetic qualities of the surface painting, the foregoing Jaffee Declaration data demonstrate that Graves is not a reliable guide in selecting a readily paintable surface, as also set forth in the Jaffee Declaration.

Moreover, it is submitted that Graves fails even to recognize other particular properties of applicant's claimed mat that render it especially advantageous for use as a gypsum board facer, including: (i) a high permeability that permits extraction of water during board fabrication without also causing excessive intrusion of the gypsum slurry into and through the facer (page 8, lines 22-25); (ii) a smooth surface of the mat with a surprisingly low content of fine staple fiber (page 9, lines 11-14); and (iii) a smooth surface of the final board product that surprisingly is not well correlated with the smoothness of the mat before board fabrication (page 20, lines 5-7). This beneficial combination of properties arises from the use of mat employing particular fibers having the sizes and relative amounts delineated by applicant's claims. However, the Examiner has not pointed to any disclosure or suggestion of such unexpected benefits in Graves. Even less is there sufficient disclosure to motivate a skilled artisan to construct the recited mat and gypsum board using the particular types and amounts of fibers recited. It is respectfully submitted that a person of ordinary skill in possession of Graves would not have any basis on which to select the particular non-woven

mat used as the facer of applicant's gypsum board, nor any reasonable expectation of success in obtaining the beneficial properties provided thereby.

Further with respect to the Examiner's renewed contention that applicant has failed to demonstrate any surprising and unexpected benefit of the gypsum board of amended claim 1 (and claims 2-5, 5, 7, 9, 11-23, and 25-28 dependent thereon), attention is also respectfully drawn to the comparison afforded by Example 6 of the specification (page 19, line 15 and following) between gypsum board made with known mat facers (Comparative Example 1) and applicant's boards made with the facers as delineated by claims 1, 29, and 33 (e.g., Examples 3 and 5 set forth in Tables III and IV). Applicant respectfully maintains that these comparisons show improved results that were surprising and unexpected at the time of the invention, thereby specifically providing objective evidence of the non-obviousness of the presently claimed board. As set forth at page 20, lines 5-7, the smoothness of dry cured mat surprisingly and unexpectedly is not indicative of the smoothness of finished board. As a result, it is submitted that Graves' disclosure at col. 12, lines 14-21 regarding the relatively coarser or softer hand of finished mat would incorrectly guide a person of ordinary skill seeking a gypsum or hydraulic set board, and would not be sufficient to motivate the selection, from the vast range of possible fiber combinations disclosed by Graves, of the mat used to face applicant's construction board. It is respectfully submitted that these results fully suffice to establish the novelty and non-obviousness of applicant's claimed subject matter.

It is respectfully submitted that the presence of these advantageous benefits, which would not otherwise be obtained, provides ample basis for predicated patentability of amended claims 1-3, 5, 7, 9, 12-15, 17-18, 29, and 32 over Graves, under the standard of *In re Geisler*, 116 F.3d at 1465, 1470, 43 USPQ2d at 1362, 1365 (Fed. Cir. 1997). [“The court in *Soni* summed up the rule of that case as follows: ‘[W]hen an applicant demonstrates *substantially* improved results, as *Soni* did here, and *states* that the results were *unexpected*, this should suffice to establish unexpected results *in the absence of* evidence to the contrary.’ citing *In re Soni*, 34 USPQ 2d 1684, 1688 (Fed. Cir. 1995). Emphases in the original.]

Applicant respectfully submits that the conditions of *Soni* have been satisfied in the present instance and that the Examiner has failed to provide objective evidence otherwise, as would be required to rebut the presumption that applicant’s recited improvement was indeed surprising and unexpected.

The Examiner has stated that the limitation of “hydraulic set” is not given any patentable weight because the method of making the gypsum board is not germane to the issue of patentability of the product itself. Applicant presumes that the Examiner has in view claim 33, since none of claims 1, 29, or 32 includes the term “hydraulic set.” The Examiner’s assertion is respectfully traversed. Feature (a) of claim 33 calls for “a hydraulic set material layer.” It is submitted that this terminology is specifically structural and does not delineate a method of making any board. Attention is respectfully directed to the specification, e.g. at

page 9, line 15 and following, wherein applicant provides an explicit definition of the term "hydraulic set material:"

By hydraulic set is meant a material capable of hardening to form a cementitious compound in the presence of water. Typical hydraulic set materials include gypsum, Portland cement, pozzolanic materials, and the like.

It is established law that an applicant's express lexicography must control the meaning of terms used in his claim. In the present instance, it is submitted that in light of the foregoing definition, the term "hydraulic set material" would be understood by a person having ordinary skill in the art as defining a class of substances known and used in the fabrication of construction boards. Accordingly, it is submitted that the term "hydraulic set material" must, as a matter of law, be given patentable weight in the adjudication of the patentability of claim 33.

With reference to claims 2 and 3, Graves is said to teach that the glass fibers can comprise c-glass, t-glass, and e-glass (col. 10, lines 4-15). Such disclosure, however, falls short of defining any species within the limits of claim 1, from which claims 2 and 3 depend.

With respect to claims 5 and 7, the 1-75 mm fiber length range cited by the Examiner (col. 10, lines 15-25) far exceeds the 5 to 30 mm range in claim 5 and 6 to 12 mm range in claim 7, for which ranges there is no disclosure or suggestion in Graves. As set forth in the present Declaration, fiber length is an important factor contributing to mat smoothness, the 6-12 mm length providing especially improved smoothness.

As to claims 12-13, the Examiner points to the 2-6 micron range set forth at col. 9, lines 50-60, of Graves, but admits that the less than 3.5 micron range of claim 12 and the less than 1.9 micron range of claim 13 are not disclosed. Significantly, and to the contrary, Graves discloses that "larger fibers would perform adequately with this invention." Applicant respectfully submits that such disclosure points away from applicant's preferred ranges of "less than about 3.5 μm " of claim 12 and "less than about 1.9 μm " of claim 13. The Examiner refers to disclosure of a length of fine staple fibers having a length of 6-76 mm (col. 9, lines 50-60), again a range far wider than the "less than about 7 mm" range of claim 14.

While the Examiner points to Graves' disclosure that "In general, as the percentage of the wool fibers is increased relative to the percentage of glass fibers, the finished mat tends to become more brittle, less foldable, and has decreased tensile strength." Such a statement must, however, be read in light of Graves' own statement that his preferred mats have a large preponderance of such wool fibers (e.g., the 80-90% of the species of Table I), whereas applicant's mat contains only a minor portion of such fibers. It is respectfully submitted that the foregoing statement of Graves, read in the context of the full patent, cannot properly be regarded as pointing to applicants 1-30% range, but instead would, at a very minimum discourage, if not completely teach away from, use of applicant's minor portion.

As to claim 18, the Examiner points to Graves' disclosure of modified urea-aldehyde. As to claim 24, the Examiner points to Graves's disclosure of the formulation of additional

ingredients into the latex and/or resin (col. 8, lines 44-50). It is respectfully submitted that the disclosures to which the Examiner refers fail to cure the lack of disclosure or suggestion of the other features of claim 1, on which claims 18 and 24 depend.

The Examiner has referred to *In re Heck*, 699 F.2d 1331, 1332-33, 216 USPQ 1038, 1039 (Fed. Cir. 1983), for the proposition that "The use of patents as references is not limited to what the patentees describe as their own inventions or to the problems with which they are concerned. They are part of the literature of the art, relevant for all they contain." (quoting *In re Lemelson*, 397 F.2d 1006, 1009, 158 USPQ 275, 277 (CCPA 1968)).

Applicant respectfully traverses the Examiner's position. It is agreed that Graves is relevant for all that it contains. However, in the present instance, Graves fails to contain any disclosure or suggestion of the properties exhibited by applicant's mat. Such absence of disclosure is submitted to be highly pertinent. Applicant, on the other hand, has discovered properties exhibited by certain mats. Even if such mats are contained *arguendo* within the broad disclosure of Graves, their surprising and unexpected properties provide a clear predicate for patentability over Graves, notwithstanding any overlap. It is submitted that applicant is properly accorded wide latitude in how to claim his invention, and specific properties need not be expressly recited. Moreover, certain of the desirable properties afforded by preferred embodiments of applicant's mat and gypsum board are expressly delineated by preferred claims, e.g. claims 28 and 32.

For at least these reasons, it is submitted that Graves does not disclose or suggest a gypsum or other hydraulic set board having the outstanding combination of structural and functional properties afforded by the gypsum board recited in present claims 1-3, 5, 7, 9, 12-15, 17-18, and 29, and the hydraulic set board of claim 33.

Accordingly, reconsideration of the rejection of Claims 1-7, 9, 12-15, 17-18, 29, and 33 under 35 USC 103(a) as being anticipated by Graves is respectfully requested.

The Examiner has further included remarks under the foregoing rejection heading that are apparently directed to claims 28 and 32 and based on purported disclosure of Graves, although there is no formal statement of rejection of these claims. As set forth hereinabove, applicant maintains that Graves fails to disclose or suggest every feature of claim 1, from which claim 28 depends. Independent claim 32 recites the same fiber dimensions and proportions as claim 1, which dimensions and proportions are also submitted not to be disclosed or suggested by Graves for the same reasons. Claims 28 and 32 recite additional features, namely flame resistance and air permeability, respectively. The combination of the structural and functional limitations of claims 28 and 32 are clearly not disclosed or suggested by Graves.

While Graves admittedly discloses certain mats as being fire resistant, there is not even the slightest suggestion of an air permeability of at least about 250 cfm/ft² as recited by claim 32. The Examiner nevertheless has asserted that such properties may be presumed to be

inherent and that the burden is upon applicant to prove otherwise under *In re Fitzgerald*, 619 F.2d 67, 205 USPQ 594 (C.C.P.A. 1980) and *In re Best*, 562 F.2d 1252, 195 USPQ 430 (C.C.P.A. 1977).

Applicant respectfully submits that the Examiner's reliance on *Fitzgerald* and *Best* is misplaced, inasmuch as the factual situation required for those cases to be apposite is not satisfied in the present instance.

Under MPEP §2144.04, legal precedent may be used as a basis for an obviousness rejection, but only if the facts in a prior legal decision are "sufficiently similar to those in an application under examination." However, the *Best* holding, which was affirmed by *Fitzgerald, supra*, was predicated on the substantial identity of the claimed and prior art products. ["Where, as here, the claimed and prior art products are identical or substantially identical... the PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product." *Best, supra*, at 1255, emphasis added.]. In the present instance, therefore, the gypsum board of claim 28 and the fibrous mat of claim 32 must be substantially identical to the gypsum board and fibrous mat allegedly provided by the Graves disclosure for *Fitzgerald* and *Best* to be applicable.

Applicant respectfully traverses any such identification. The Examiner has admitted that Graves does not expressly disclose or suggest the claimed flame resistance or air permeability, but instead relies on the presumed inherency of such features in a gypsum board

constructed using the Graves mat. As set forth hereinabove, gypsum board employing mat comprising applicant's particular blend of glass fibers is not disclosed or suggested by Graves. To the contrary, the preferred diameter ranges and the disclosed species all employ a much larger proportion of fine fibers than applicant's mat and the permissible range of fiber blends is far wider. As a result, it is submitted that there are substantial differences between any gypsum board disclosed or suggested by Graves and the board recited by claim 1, on which claim 28 depends, precluding application of *Fitzgerald* or *Best* in respect of claim 28, which requires the products to be substantially identical.

The Examiner alleges that support for the presumed inherency is found in the use of like materials (i.e. a gypsum board having a facer layer comprising a mixture of various diameter glass fibers and a binder which would result in the claimed properties. Applicant continues to maintain that this inherency argument falls short of the legal standard for such arguments under *Ex parte Schricker*, 56 USPQ 2d 1723, 1725 (B.P.A.I. 2000) (unpublished). [...when an examiner relies on inherency, it is incumbent on the examiner to point to the "page and line" of the prior art which justifies an inherency theory. Compare *In re Rijckaert*, 9 F.3d 1531, 1533, 28 USPQ 2d 1955, 1957 (Fed. Cir. 1993) (when the PTO asserts that there is an explicit or implicit teaching or suggestion in the prior art, it must indicate where such a teaching or suggestion appears in the prior art) (citing *In re Yates*, 663 F.2d 1054, 1057, 211 USPQ 1149, 1151 (C.C.P.A. 1981))]. Applicant also maintains that the Examiner's rejection does not rise to the comparable level of the test elucidated by the Board of Patent Appeals and

Interferences in *Ex parte Skinner*, 2 USPQ2d 1788, 1789 (B.P.A.I. 1986). Despite applicant's citation of these requirements in the response dated June 22, 2006, it is submitted that the present rejection still does not provide sufficient evidence or scientific reasoning to establish the reasonableness of the Examiner's belief that the functional limitation is an inherent characteristic of the prior art Graves mat. The BPAI specifically requires such a showing before the requirement ("this burdensome task") to show the lack of inherency can be invoked, as it was in the present instance.

Absent a showing that the Graves mat is substantially identical to the claim 28 mat, it is maintained that the factual predicate of *Fitzgerald* and *Best* is not satisfied, so that burden to prove that the claimed properties are not exhibited by the Graves mat has not properly been shifted to applicant. Accordingly, it is submitted that the Examiner has not established a proper basis on which the rejection based on presumed inherency could properly be grounded.

The same argument is submitted also to be pertinent to the rejection of claim 32. Inasmuch as disclosure of the claimed air permeability is altogether absent from Graves, the implicit assertion of substantial identity is even more strained.

Moreover, applicant has provided specific evidence that certain mats falling within the scope of the Graves teaching on which the Examiner has relied fail to exhibit the air permeability required by claim 32, thereby negating any assertion of inherency. In response to a previous rejection of claims 1-7, 9, 11-14, 18-23, 28-29, and 31-33 over US Patent 6,187,697 to Jaffee and US Patent 4,637,951 to Gill, applicant pointed to Gill et al.'s

disclosure of a fibrous glass mat that includes a majority of base fibers having a mean diameter in the range of 10 microns with a minor amount of microfibers (Abstract). Importantly, such a mat has a fiber content that also lies within the ranges delineated by Graves. However, the Gill et al. mat is said preferably to have a porosity of no greater than 225 cubic feet per minute per square foot of mat as measured using the Frazier Air Permeability Test (Abstract). In other embodiments, the Gill et al. mat has even lower air permeability, e.g. 180 cubic feet/min (col. 5, line 59); and 40-225 cubic feet/min (claims 3 and 12). Such data clearly refute any presumption that all mats disclosed by Graves inherently have an air permeability of greater than about 250 cubic feet/minute/square foot, as delineated by claim 32. ["Before a reference can be found to disclose a feature by virtue of its inherency, one of ordinary skill in the art viewing the reference must understand that the unmentioned feature at issue is necessarily present in the reference. The test of inherency is not satisfied by what a reference 'may' teach. ('Inherency . . . may not be established by probabilities or possibilities. The mere fact that a certain thing *may* result from a given set of circumstances is not sufficient.') (*SGS-Thomson Microelectronics, Inc. v. International Rectifier Corp.*, 32 USPQ 2d 1496, 1503 (Fed. Cir.) (unpublished) (emphasis added), *cert. denied*, 513 U.S. 1052 (1994), quoting *Continental Can*, 948 F.2d at 1268-69, 20 USPQ 2d at 1749-50.)

The Examiner has countered applicant's remarks with respect to the air permeability of the Gill mat by asserting that the Gill reference is a secondary reference used only to teach an

alleged combination of microfibers and chopped glass fibers, and that no reliance was placed on Gill for teaching a level of permeability (page 23 of the instant Office Action). Applicant respectfully submits that under the standard of *In re Heck, supra*, on which the Examiner has herself relied, prior art patents are "relevant for all they contain." In the present instance, applicant maintains that Gill's air permeability disclosure is clearly relevant, and equally applicable to all mats disclosed by Graves, Jaffee, and Gill, or any combination thereof, in the absence of basis for differentiation. The Examiner's exclusion of Gill's disclosure pertaining to air permeability is submitted to evidence impermissible hindsight reconstruction. As set forth in the instant specification, e.g., at page 8, lines 23-25, a sufficiently high air permeability is needed to allow water from the gypsum slurry to be readily extracted during board formation. The Examiner may not properly dismiss the foregoing argument with respect to Gill by alleging that the applicant is required to show that the mat of Graves does not inherently have applicant's air permeability range. Applicant continues to maintain the position that the burden of showing the prior art Graves mat does not have applicant's claimed air permeability range has not been properly transferred to applicant under the *Best* and *Fitzgerald* standard. However, even if *arguendo* that burden has been shifted, it is submitted that the Gill teaching remains pertinent and rises to the level of any required showing. More specifically, at least some of the mats disclosed by Gill contain fibers that clearly fall within the range delineated by Graves but fail to have the required 250 cfm/ft² air permeability. Any assertion that all Graves mats have the required 250 cfm/ft² air permeability is thus

clearly untenable. The Examiner has not pointed to any disclosure or suggestion that selection of the particular fiber diameters and lengths required by claim 1 also necessarily results in a 250 cfm/ft² air permeability. Absent such certainty, it is submitted that the Examiner has not established any prima facie obviousness under which the *Best* and *Fitzgerald* standard might properly be invoked.

Furthermore, the present rejection over Graves fails to establish permeability as a property to be optimized. The selection of mat having the recited air permeability inherently cannot be regarded as optimization of the type within the purview of *Boesch*, because the permeability property is not known or recognized by Graves, and hence, there is no reason, apart from applicant's own teaching, to carry out any such optimization. In *Boesch*, the very mechanical properties (ductility and creep resistance) being optimized were established to have been known in the prior art. At best, *Boesch* establishes that optimization of particular properties known from the prior art to be result-effective was within routine skill, but it does not establish that optimization of other properties is merely routine. Importantly, there is no reason for a skilled artisan to expect that optimizing for one property necessarily optimizes for another. For example, in the present instance air permeability might be enhanced by choosing a very open, non-dense mat. However, such a choice would clearly result in a mat having very poor smoothness. On the other hand, applicant has unexpectedly found that the combination of high permeability and smoothness delineated by claim 32 can in fact be obtained.

In the present instance, the Examiner has not pointed to any disclosure or suggestion in Graves (or elsewhere) that differentiates the air permeability of mats broadly disclosed, at least some of which demonstrably lack the air permeability required by claim 32, from those made with the particular range of average glass fiber diameter recited by applicant. Accordingly, it is submitted that the preferred mat delineated by claim 32 is novel and unobvious over Graves.

For these reasons, it is submitted that Graves does not disclose or suggest a gypsum board or mat having the outstanding combination of properties afforded by the gypsum board recited by present claim 28 and the mat of claim 32.

Claim 16 was rejected under 35 USC 103(a) as being unpatentable over Graves in view of US Patent 6,365,533 to Horner, Jr., et al., which relates to a low fiber, plyable facer suitable for use in insulation board manufacture.

Applicant respectfully disagrees with the Examiner's position that Graves teaches the invention recited by claim 16, except for disclosure of a second face comprising kraft paper, as set forth hereinabove in connection with the 103(a) rejection of claims 1-7, 9, 12-15, 17-18, 29, and 33 over Graves. It is respectfully maintained that Horner, Jr., et al. does not cure the aforementioned deficiencies of Graves to render obvious the invention of claim 16.

For these reasons, and those set forth above, it is submitted that the combination of Graves and Horner, Jr., et al. does not disclose or suggest the gypsum board recited by present claim 16.

Accordingly, reconsideration of the rejection of claim 16 under 35 USC 103(a) as being obvious over the combination of Graves and Horner, Jr., et al. is respectfully requested.

Claim 26 was rejected under 35 USC 103(a) as being unpatentable over Graves in view of US Patent Publication US 2004/0209071 to Carbo et al., which discloses acoustical tiles, also known as acoustical panels, ceiling tiles, or ceiling panels, that are said to inhibit the growth of fungus, bacterial and other micro-organism.

The Examiner has asserted that Jaffee teaches the claimed invention but fails to teach that the core further comprises a biocide. Applicant infers that the reference to Jaffee was inadvertent and that Graves was instead intended.

Applicant respectfully disagrees that Graves teaches the claimed invention except for a biocide contained in the core, for at least the reasons set forth hereinabove in connection with the 103(a) rejection of claims 1-7, 9, 12-15, 17-18, 29, and 33 over Graves. Applicant further maintains that Carbo et al. fails to cure the lack of disclosure or suggestion of a gypsum board employing the nonwoven mat facers delineated by claim 1, from which claim 26 depends.

As a result, it is submitted that the combination of Graves and Carbo et al. does not disclose or suggest a gypsum board having the outstanding combination of properties afforded by the board recited by present claim 26.

Accordingly, reconsideration of the rejection of claim 26 under 35 USC 103(a) as being obvious over the combination of Graves and Carbo et al. is respectfully requested.

Claims 25 and 27 were rejected under 35 USC 103(a) as being unpatentable over Graves in view of US Patent 4,647,496 to Lehnert et al., which provides an exterior finishing system for a building, such as a fibrous mat-faced gypsum board having a water resistant, set gypsum core.

Applicant respectfully disagrees with the Examiner's position that Graves teaches the invention recited by claims 25 and 27, except for disclosure of a gypsum core comprising at least one water repellant agent as required by claim 25 and reinforcing fiber as required by claim 27. More specifically, for the reasons set forth hereinabove in connection with the 103(a) rejection of claims 1-7, 9, 12-15, 17-18, 29, and 33, applicant respectfully submits that Graves fails to disclose or suggest the non-woven fibrous mat facer required for the gypsum board of claim 1, on which claims 25 and 27 depend. Moreover, Lehnert et al. does not contain any disclosure or suggestion of the particular facer delineated by claim 1, and so fails to cure the deficiency of Graves. Applicant thus submits that even in combination, Graves

and Lehnert et al. do not disclose or suggest the gypsum board delineated by claims 25 and 27.

Accordingly, reconsideration of the rejection of claims 25 and 27 under 35 USC 103(a) as being obvious over the combination of Graves and Lehnert et al. is respectfully requested.

Claims 1-7, 9, 11-14, 17-18, 23, 28-29, and 32-33 were rejected under 35 USC 103(a) as being unpatentable over US Patent 5,837,621 to Kajander in view of US Patent 4,637,951 to Gill. In view of the cancellation of claims 4 and 6, this rejection will be discussed with respect to remaining claims 1-3, 5, 7, 9, 11-14, 17-18, 23, 28-29, and 32-33.

Kajander discloses a fire resistant glass fiber mat. The fibers are coated with at least one nitrogen containing compound and at least one boron-containing compound and dried. A binder in the coating is cured. The resulting fibers are sheathed with a refractory material that protects the fibers and allows them to maintain integrity to higher temperatures and/or for longer times than untreated fibers.

The Examiner has pointed to col. 7, lines 10-25, which discloses glass fibers having diameters in the range of 3 to 20 microns and length up to about 3 inches (lines 27-28). In addition, the Examiner has cited Kajander's statement that fibers of different lengths and diameters can be used to get different characteristics in a known manner. (lines 26-27, emphasis added).

However, the Examiner has not pointed to any teaching in Kajander or elsewhere that would motivate a person having ordinary skill in the art to select the particular combination of fibers required by applicant's claims. As applicant argued in the response dated June 22, 2006, the appeal to any "known manner" without any substantiation is submitted to be merely conclusory and insufficient as a documented basis under the standard of *In re Lee*, 277 F.3d 1338, 1344-45, 61 USPQ2d 1430, 1435 (Fed. Cir. 2002) (finding that reliance on "common knowledge and common sense" did not fulfill the PTO's obligation to cite references to support its conclusions, as the PTO must document its reasoning on the record to allow accountability and effective appellate review.)

Applicant further maintains that the Examiner has not established that the aforementioned "known manner" encompasses the characteristics afforded by the mat and gypsum board of applicant's claims. Applicant respectfully submits that the Kajander disclosure falls short of disclosing or suggesting any embodiments having the characteristics of applicant's facer and board, and does not provide any basis on which it could be concluded that one of ordinary skill would recognize such characteristics are known, or even that there was a reasonable expectation such characteristics would be attained by any facer suggested by Kajander. At best, Kajander's suggestion that fibers of different lengths and diameters can be used to get different characteristics in a "known manner" renders experimentation "obvious to try," which falls short of the legal standard for obviousness under 34 USC 103(a), as discussed hereinabove in greater detail.

In the present instance, applicant maintains that mere disclosure of the theoretical possibility of different fiber diameters and lengths does not rise to the level of obviousness required by 35 USC §103(a), and is precisely of the nature piquing an artisan's curiosity envisioned in *Eli Lilly* and *Goldgaber* cited hereinabove.

Admitting that Kajander fails to teach the particular fiber combination delineated by claim 1 (as previously presented), viz. "a blend of a major portion composed of chopped glass fibers having an average fiber diameter ranging from about 8 to 17 μm and a minor portion composed of fine staple fibers having an average fiber diameter of less than about 5.5 μm , said minor portion being composed of glass or mineral fibers and comprising about 1-30 percent of the dry weight of the web", the Examiner has further cited Gill.

Gill is directed to a fibrous mat facer with improved strikethrough resistance. The mat is said to be especially suited as a carrier, substrate, or facer for various curable materials that are place on one surface of the mat while in a liquid state. Gill et al. further discloses a laminate comprising the foregoing mat and a vinyl plastisol coating or a coating of a foam insulation material such as a polyurethane or polyisocyanurate foam. Conspicuously absent from the Gill et al. disclosure is any reference to gypsum or other cementitious construction board.

Applicant respectfully traverses the Examiner's alleged motivation for the modification of Gill required to satisfy the requirements of the instant claims. In particular, the Examiner has pointed to col. 3, lines 24-26, as suggesting the use of the present blend of

fibers, alleging that a person of ordinary skill in the art would be motivated to use such a blend to create a mat having a non-abrasive and irritating hand. Applicant respectfully submits that hindsight reconstruction is being employed. The context of col. 3, lines 24-26, clearly relates to the limits of 8 and 25 micron fiber diameters. In particular, it is maintained that "The coarser fibers" of lines 24-25 cannot relate to microfibers in the blend, which are not described until the paragraph following the statement (i.e., the paragraph at lines 27-58). Moreover, the cited statement elucidates the basis on which the upper limit of 25 microns is set, which relates to the "hand or feel of the final mat material" (line 24). Gill et al. clearly regards mat incorporating fibers having a 25 micron diameter as being sufficiently free of any feel that is abrasive or irritating. Moreover, there is no indication in the recited passage that the hand and feel of the mat relate to the microfiber content.

On the other hand, the Examiner has extrapolated Gill et al.'s specific teaching to assert a motivation to form a mat containing much smaller chopped glass fibers (i.e., fibers having a diameter of at most 17 microns), in combination with specified microfibers. It is respectfully submitted that the Examiner's assertion goes far beyond the scope of what a person having ordinary skill in the art would understand from the Gill et al. disclosure. More specifically, applicant maintains that the Examiner's apparent association of the effects of microfibers on the properties of finished mat and board, which Gill et al. does not address, must be regarded as impermissible hindsight reconstruction possible only in light of applicant's own teaching.

It is respectfully submitted that the operation of hindsight is particularly manifest in the Examiner's statement (page 24, end of first paragraph) that "It is reasonable to assume that the desire to restrict the amount of coarse fibers due to the hand and feel of the mat correlates with the properties imparted by the microfibers. Therefore, there is sufficient motivation to combine Kajander and Gill" (emphasis added). Applicant respectfully submits that this statement is wholly conclusory and unsubstantiated. Moreover, it flies in the face of the very examples provided by the specification, as well as the data provided by the Jaffee Declaration under Rule 132, which both demonstrate that reducing the diameter of fibers does not invariably have the effect of improving the hand of glass fiber mat, which would be expected if the Examiner's supposed "reasonable conclusion" were in fact correct. Far from establishing the conclusion, the data refute it as ill founded.

Furthermore, applicant respectfully points to the test data of Example 6, in which smoothness of gypsum board made with blended glass fiber mats of Examples 3 and 5, in accordance with the invention, is compared to the smoothness of board made with a mat comprising only chopped glass fibers, i.e. the mat of Comparative Example 1. Significantly, the mat of Comparative Example 1 is made with glass fibers having an average diameter of 13 microns, about half the upper diameter limit regarded as providing mat regarded by Gill et al. as producing mat with acceptably low abrasiveness and irritation. As delineated at page 20, lines 1-5, and contrary to what a skilled artisan would infer from Gill et al., it is surprising and unexpected that despite the low diameter of the Comparative Example 1 fiber, significant

improvement is still exhibited by boards employing the blended-fiber mats of Example 3 and 5, even though the base fibers used therein are only marginally smaller (i.e. 11 micron) than the Example 1 mat with 13 micron fiber. Moreover, the data of Example 6 also show the surprising and unexpected result that the smoothness of the mat prior to incorporation in gypsum board is not predictive of the properties of the finished board. See, e.g., page 20, lines 5-7.

The Examiner further relies on *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980), contending that applicant's selection of the particular mat formulation recited represents merely the discovery of an optimized value of a result-effective variable. Applicant disagrees, and submits that the reliance on *Boesch* is misplaced. It is submitted that the Examiner has not identified any disclosure or suggestion that the alleged result effect variable in fact has the effect of producing smooth board. As set forth above, Gill's disclosure pertains only to large diameter fiber (i.e. fiber of greater than 25 micron diameter), whereas applicant's mat employs a major portion of a fiber that is 8-17 microns in diameter. There is a conspicuous absence of any recognition that the amount of microfiber present is any result-effective variable, as required for *Boesch* to be applicable. To the contrary, applicant points to the Federal Circuit's holding in *In re Chu*, 36 USPQ 2d 1089, 1095 (Fed. Cir. 1995), that technical evidence relating to the frailty of fabric filters during pulse-jet cleaning clearly countered the assertion that placement of the catalyst in the baghouse was merely a "design choice." Specifically, the Court held that Chu's evidence regarding the

violent "snapping" action during pulse-jet cleaning, the difficulty in stitching compartments including the capacity to withstand high temperatures, and problems encountered from variable path lengths due to settling of the catalyst particles in each compartment militated against a conclusion that placement of the SCR catalyst was merely a "design choice." In the present instance, applicant maintains that smoothness, even in light of Kajander and Gill et al., is clearly a result; not a design choice that the skilled worker can readily "dial up" on command. See also *In re Gal*, 980 F.2d 717, 25 USPQ2d 1076 (Fed. Cir. 1992) wherein a finding of "obvious design choice" was precluded where the claimed structure and the function it performed were different from the prior art.) In the present instance, Gill et al. requires a hold-out additive/resin binder combination that is effective to prevent wetting and penetration of porous mat by a settable fluid substance (col. 4, lines 35-39). On the other hand, the presence of such a combination in applicant's gypsum mat would be incompatible with the bonding that is required between the mat and the adjacent gypsum core.

The Examiner has again relied on *Best* and *Fitzgerald* to assert that the burden has shifted to applicant to demonstrate that the recited properties are not inherent in the mat constructed in accordance with the combined disclosure of Kajander and Gill. It is respectfully submitted that the factual predicate of *Best* and *Fitzgerald* is again not satisfied, the Kajander/Gill mat not being demonstrably substantially identical to that of claims 1-7, 9, 11-14, 17-18, 23, 28-29, and 32-33.

Still further, applicant points to the Jaffee Declaration as establishing the lack of motivation for a person having ordinary skill in the art to combine Gill et al. with Kajander, in view of the low permeability of the Gill mat, which is said to be designed to be resistant to wetting or strikethrough. More specifically, any mat constructed in accordance with the disclosure of Gill concerning the choice of fibers and binders would inherently have a low permeability, thereby impeding the extraction of excess water, as needed in the fabrication of the present gypsum board.

Accordingly, applicant respectfully requests that the rejection of 1-7, 9, 11-14, 17-18, 23, 28-29, and 32-33 under 35 USC 103(a) as being unpatentable over Kajander in view of Gill be withdrawn.

Claim 16 was rejected under 35 USC 103(a) as being unpatentable over Kajander in view of Gill and further in view of Horner.

The Examiner has indicated that Kajander in view of Gill et al. teaches the invention recited by claim 16, except for disclosure of a second face comprising kraft paper. For the reasons set forth hereinabove in connection with the 102(b) rejection of claims 1-7, 9, 11-14, 17-18, 23, 28-29, and 32-33 over Kajander in view of Gill et al., applicant disagrees. It is respectfully maintained that Horner, Jr., et al. does not cure the aforementioned deficiencies of Kajander in view of Gill et al. to render obvious the invention of claim 16.

For these reasons, and those set forth above, it is submitted that the combination of Kajander, Gill et al., and Horner, Jr., et al. does not disclose or suggest the gypsum board recited by present claim 16. Applicant also traverses the propriety of the combination of Kajander and Gill. As set forth in the accompanying Rule 132 Declaration of Jaffee and in further detail above, a skilled artisan would regard the mat of Gill as having insufficient permeability to be used in preparing the present gypsum board, and so would not look to the teaching of Gill as alleged by the Examiner.

Accordingly, applicant respectfully requests that the rejection of claim 16 under 35 USC 103(a) as being unpatentable over Kajander in view of Gill et al. and further in view of Horner be withdrawn.

Claim 26 was rejected under 35 USC 103(a) as being unpatentable over Kajander in view of Gill et al. and further in view of Carbo et al.

The Examiner has asserted that Kajander in view of Gill teaches the claimed invention but fails to teach that the core further comprises a biocide.

Applicant respectfully disagrees for the reasons set forth above in connection with the rejection of claims 1-7, 9, 11-14, 17-18, 23, 28-29, and 32-33 under 35 USC 103(a) as being obvious over Kajander and Gill. Inasmuch as claim 26 depends from claim 1, it is submitted that claim 26 is also patentable for at least the same reasons. Applicant also traverses the propriety of the combination of Kajander and Gill for the reasons set forth above.

Accordingly, applicant respectfully requests that the rejection of claim 26 under 35 USC 103(a) as being unpatentable over Kajander in view of Gill et al. and further in view of Carbo et al. be withdrawn.

Claims 25 and 27 were rejected under 35 USC 103(a) as being unpatentable over Kajander in view of Gill et al. and further in view of Lehnert et al.

Applicant respectfully disagrees with the Examiner's position that the combination of Kajander and Gill teaches the invention recited by claims 25 and 27, except for disclosure of a gypsum core comprising at least one water repellant agent as required by claim 25 and reinforcing fiber as required by claim 27. More specifically, for the reasons set forth hereinabove in connection with the 103(a) rejection of claims 1-7, 9, 11-14, 17-18, 23, 28-29, and 32-33, applicant respectfully submits that even in combination, Kajander and Gill fail to disclose or suggest the non-woven fibrous mat facer required for the gypsum board of claim 1, on which claims 25 and 27 depend. Neither does Lehnert et al. contain any disclosure or suggestion of the particular facer delineated by claim 1. Consequently, the Lehnert et al. teaching fails to cure the deficiency of Kajander and Gill. Applicant thus submits that even in combination, Kajander, Gill, and Lehnert et al. do not disclose or suggest the gypsum board delineated by claims 25 and 27. Applicant again traverses the propriety of the combination of Kajander and Gill for the reasons set forth above.

Accordingly, reconsideration of the rejection of claims 25 and 27 under 35 USC 103(a) as being obvious over the combination of Kajander, Gill, and Lehnert et al. is respectfully requested.

Claims 1-7, 9, 11-14, 18-23, 28-29, and 31-33 were rejected under 35 USC 103(a) as being unpatentable over US Patent 6,187,697 to Jaffee et al. in view of US Patent 4,637,951 to Gill. In view of the cancellation of claims 4 and 6, this rejection will be discussed with respect to remaining claims 1-3, 5, 7, 11-14, 18-23, 28-29, and 31-33.

Jaffee et al. is directed to fibrous nonwoven multiple layer mats having at least two layers with a body portion layer and a surface portion layer having fine fibers and/or particles therein, both layers being bonded together and to each other with a same resin binder. Preferably most or essentially all of the particles and/or fibers in the surface layer are larger than openings between the fibers in the body portion of the mat. The Examiner has particularly pointed to disclosure of fibers at least 0.25 inches long. In addition, it is said that mixtures of fibers of different lengths and/or fiber diameters can be used (col. 5, lines 34-35).

In marked contrast to the single-layer mat used in applicant's claimed gypsum board, the Jaffee et al. mat is a two-layer mat, including both a glass fiber body layer and a surface layer comprising fibers and/or particles. Significantly, the Jaffee mat is said to attain its smoothness through the use of a differentiated surface layer (col. 2, lines 51-54). However,

such a surface layer portion detrimentally has “substantially lower permeability” (col. 2, lines 41-43 and 49-51). It is respectfully submitted that this lower permeability constitutes a teaching away from the requirement that the present mat have a high permeability to permit efficient extraction of a stoichiometric excess of water required in the gypsum slurry used to form the present gypsum board. The Examiner has not pointed to any disclosure or suggestion in the Jaffee et al. reference that the particular types of fibers recited be used in any single layer type of mat. Applicant respectfully submits that even in combination with Gill et al., as the Examiner has proposed, there is no teaching that would lead a person having ordinary skill to substantially reconstruct the Jaffee et al. mat by eliminating the required surface portion of the mat. Applicant’s mat and gypsum board faced therewith, as recited by present claims 1-3, 5, 7, 9, 11-14, 18-23, 28-29, and 31-33, do not have such a surface portion. It is respectfully submitted that the need for such substantial reconstruction is strong evidence that the present mat and gypsum board are not obvious over the references applied. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959). Importantly, Jaffee et al. articulates the long-felt need for a smooth surfaced mat, as set forth at col. 2, line 14. However, Jaffee et al. clearly addresses the surface issue in an altogether different way, i.e. by provision of a surface layer differentiated in structure and composition from the glass fiber matrix of the rest of the mat. Accordingly, no disclosure or suggestion can be drawn from Jaffee et al. that provides any basis for predicting that the problem of a smooth surface would

reasonably be expected to be overcome by use of applicant's choice of mat structure, which is formed into a single, undifferentiated layer.

The Examiner has countered that a "two-layered mat can be considered to be 'a layer.'" Applicant respectfully submits that a person having ordinary skill in the art would not regard the Jaffee mat as being "a layer." In particular, the Examiner's reading is submitted to be untenable in light of the Jaffee reference taken as a whole, as is required under 35 USC §103(a). While the term "a single layer" is admittedly not explicitly used by applicant, the skilled artisan would regard Jaffee as teaching a structure having a differentiated surface, including layers having different substructures. This understanding is corroborated by the present Rule 132 Declaration by Jaffee, himself a co-inventor of the '697 patent. No motivation is provided to modify the Jaffee '697 reference in the manner apparently envisioned by the Examiner, i.e. to eliminate a required substructure, resulting in an undifferentiated surface region, as provided by applicant's claimed gypsum board.

Recognizing that Jaffee fails to teach the particular combination of chopped glass fibers and fine staple fibers recited by applicant's claims, the Examiner has again pointed to Gill et al., and maintains that it would be obvious to use the claimed mixture of fibers allegedly disclosed by Gill et al. in the mat of Jaffee to create a facer with improved strikethrough and skin irritation problems.

Applicant respectfully traverses this motivation. As set forth hereinabove in connection with the combination of Gill with Kajander, it is submitted that the motivation articulated evidences impermissible hindsight reconstruction, because Gill et al.'s discussion of skin irritation is directed only to fibers having diameter greater than 25 microns, and so is not pertinent to the chopped fibers of applicant's mat, which have diameter of 8-17 microns. Even less does Gill et al. recognize any role of microfibers in regard to skin irritation.

Moreover, the improved strikethrough resistance cited by the Examiner would motivate a person having ordinary skill in the art to avoid the proposed combination. In the production of gypsum board, the gypsum is initially deposited onto the facer in the form of an aqueous slurry with a substantial excess of water. It is essential that the facers have sufficient permeability to permit that excess water to be extracted through the facer. On the other hand, Gill et al. is directed to mat said to be suitable for polyurethane and polyisocyanurate insulating foam materials, for which waterproofing is a key performance criterion. One of ordinary skill in the art would recognize that a low permeability is desired for such an application. Significantly, Gill et al. teach air permeability, as measured by the Frazier Air Permeability Test, as being a criterion for distinguishing the effective amount of microfiber to be employed. Col. 5, lines 23-26. In particular, the Gill et al. Examples delineate Frazier Air Permeability Test results of 180 cubic feet/min (col. 5, line 59) and 220 cubic feet/min (col. 6, lines 4-5). Claims 2, 3, 10, and 12 recite preferred mats and laminates wherein the air permeability is either no more than about 225 cubic feet/min or

between about 40 and 225 cubic feet/min. The recitation of an upper limit for air permeability further reinforces the Gill et al. teaching that lower permeabilities are desired. Applicant, on the other hand, recites mats that include preferred embodiments wherein the air permeability is at least about 250 cubic feet/minute, and more preferably at least 300 cubic feet/minute (see e.g. page 12, line 29 to page 13, line 10; Table IV; and claim 32.) As a result, applicant would be led away from the proposed combination, as further confirmed in the Rule 132 Declaration of Jaffee.

Furthermore, applicant respectfully maintains that the Examiner has misconstrued the argument concerning air permeability in connection with Jaffee and Gill. In particular, it is submitted that applicant's argument demonstrates that at least some mats constructed in accordance with the combined disclosure of Jaffee and Gill do not have an air permeability of at least 250 cfm/ft². The demonstration of at least some mat species lacking the 250 cfm/ft² permeability conclusively establishes that the claimed permeability is not inherent in a Jaffee mat.

Applicant respectfully submits that the Examiner's dismissal of the foregoing argument with respect to Gill is improper, it being alleged that the applicant is required to show that the mat of Jaffee does not inherently have applicant's air permeability range. Applicant continues to maintain the position that the burden of showing the prior art Jaffee mat does not have applicant's claimed air permeability range has not been properly transferred to applicant under the *Best* and *Fitzgerald* standard. However, even if *arguendo* that burden has been

shifted, it is submitted that the Gill teaching remains pertinent and rise to the level of any required showing, because mats disclosed by Gill contain fibers that clearly fall within the range delineated by Jaffee.

In the present instance, the Examiner has not pointed to any disclosure or suggestion in Jaffee (or elsewhere) that differentiates the air permeability of mats broadly disclosed, at least some of which lack the air permeability required by claim 32, from those made with the particular range of average glass fiber diameter recited by applicant. Accordingly, it is submitted that the preferred mat delineated by claim 32 is novel and unobvious over Jaffee.

Moreover, it is submitted that, even if proper, the combination of Jaffee with Gill et al. would not disclose or suggest applicant's mat and gypsum board. In particular, the Examiner has failed to point to any disclosure or suggestion in Gill et al. that would motivate a person of ordinary skill in the art to construct a mat lacking the surface layer required by Jaffee, which is not present in applicant's mat. Significantly, it is the surface layer of the Jaffee mat that is responsible for the character of the hand and surface roughness of the Jaffee mat, not the particular fiber combination chosen; this obviates the very motivation for the combination on which the Examiner relies.

Accordingly, applicant respectfully requests that the rejection of 1-7, 9, 11-14, 18-23, 28-29, and 31-33 under 35 USC 103(a) as being unpatentable over Jaffee et al. in view of Gill be withdrawn.


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In view of the foregoing remarks, it is respectfully submitted that the present application has been placed in allowable condition. Reconsideration of the rejection and allowance of claims 1-3, 5, 7, 9, 11-23, 25-29, and 31-33, as amended, are earnestly solicited.

Respectfully submitted,

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